



Preliminary Commercial Harbor Craft Emission Inventory

Public Workshop
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Outline

- Data sources
- Methodology
- Preliminary results
- Next steps

Data Sources

- Population data from multiple sources
 - U.S. Coast Guard registration data
 - CA Department of Fish & Game registration data
 - Port of Los Angeles Emission Inventory ARB Survey (2002)
 - ARB 2003 Port/Harbor/ Marina Survey
- Engine specific data used to derive emission rates from ARB's Commercial Harbor Craft Survey
- Zero hour emission factors, attrition rates, deterioration factors from ARB's OFFROAD model

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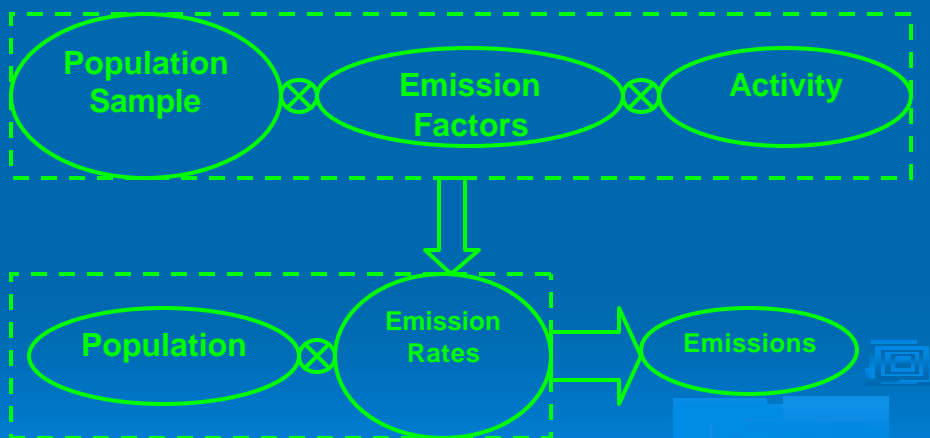
Differences from Previous Inventories

- Single, integrated model with flexibility
- More detailed calculations
 - Use available engine specific data instead of average when calculating emission rates
- Forecast of future year emissions based on fleet growth, engine deterioration, fleet attrition
- Covers 100 miles from shore (GMERP 24 miles)
- Updated data
 - Engine useful life and annual operating hours

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Logic of the Model



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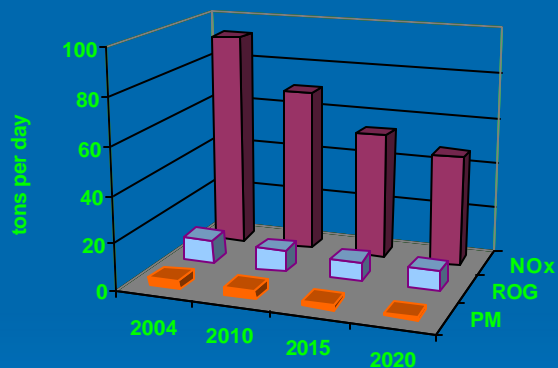
Inventory Methodology

- Population
 - Estimated county population from data sources
 - Estimated number of engines per vessel from survey
 - Applied vessel type specific growth factors
 - Applied vessel type specific attrition rates
- Activity
 - Annual operating hours by engine
 - Vessel type specific load factor
- Emission Factors
 - Based on OFFROAD; adjusted for marine cycles
 - Includes deterioration and fuel correction factors

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Estimated Statewide Emissions

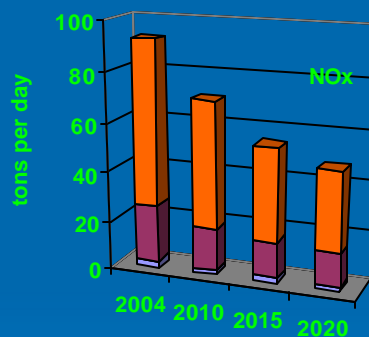


	2004	2010	2015	2020
PM	3.9	3.5	2.1	1.7
ROG	18.5	9.5	8.7	8.4
NOx	92.6	70.4	54.5	47.5

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NOx Emissions by Vessel Type

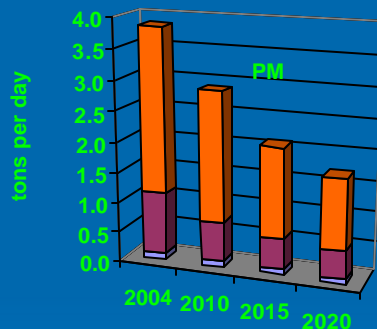


	2004	2010	2015	2020
Ferry, Tug&Tow	66.5	51.3	38.0	32.2
Fishing	23.4	17.1	14.5	13.7
Others	2.7	2.0	2.1	1.7

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PM Emissions by Vessel Type

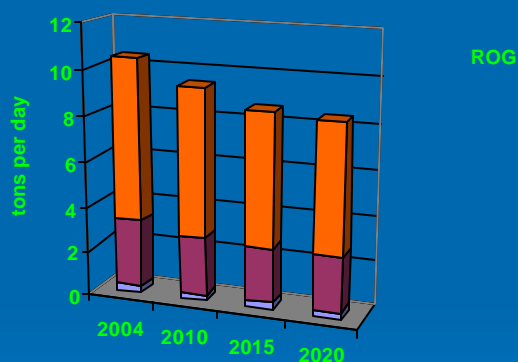


	2004	2010	2015	2020
Ferry, Tug&Tow	2.7	2.1	1.5	1.2
Fishing	1.0	0.7	0.5	0.5
Others	0.1	0.1	0.1	0.1

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ROG Emissions by Vessel Type



	2004	2010	2015	2020
Ferry, Tug&Tow	7.2	6.6	5.9	5.7
Fishing	3.0	2.6	2.4	2.5
Others	0.3	0.3	0.3	0.3

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Next Steps

- Verify and validate
- Integrate SOx emissions
- Refine spatial distribution
- Modify according to comments
- Incorporate proposed regulations to support regulatory analysis

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